T3: Encoding and Decoding Language in the Brain with Language Models

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`https://subbareddy248.github.io/tutorials/`
`eacl-2026-brain-ai/`
Introductory
Pavillon DE RABAT (Level 1)
Sunday, March 29, 2026 - from 09:00 to 12:30

This EACL 2026 tutorial will cover the foundations of brain–language model alignment and will then explore recent advances on scaling laws of language models for brain alignment, multilingual brain encoding, recent developments in fine-tuning language models with brain data, and advances in brain decoding using language models, including semantic reconstruction of continuous language from brain data. Participants will gain an overview of current naturalistic datasets, computational frameworks, and methods driving the emerging field of NeuroAI. The learning objectives are: (1) Understand the fundamental concepts of brain-AI alignment and encoding models; (2) Learn methodologies for comparing brain activity with model representations; (3) Gain insights into multilingual processing in both human brains and language models; (4) Master techniques for brain-informed model fine-tuning and evaluation; and (5) Discover practical applications and future research directions in Neuro-AI.

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Bio. Anuja Negi is a PhD candidate at the Cognitive Computing in Biological and Artificial Systems Lab at TU Berlin, Germany is affiliated with the Bernstein Center for Computational Neuroscience (BCCN) Berlin. She received her Master's degree in Computational Neuroscience jointly from Technische Universität Berlin and Humboldt-Universität zu Berlin. Her research focuses on language comprehension and learning, bridging neuroscience and artificial intelligence, using insights from one to better understand and improve the other. Her work has appeared at Conference on Neural Information Processing Systems (NeurIPS), Society for

Neuroscience (SfN), Cognitive Computational Neuroscience (CCN), the Society for the Neurobiology of Language (SNL), Organization for Human Brain Mapping (OHBM), and NeuroImage journal.

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Bio. Mathis Lamarre is a PhD candidate at the Cognitive Computing in Biological and Artificial Systems Lab at TU Berlin, Germany is affiliated with the Bernstein Center for Computational Neuroscience (BCCN) Berlin. He received his Master's degree in Computational Science and Engineering from ETH Zürich, and his Bachelor's degree in Life Sciences and Technology from EPF Lausanne. He is interested in using tools from Natural Language Processing to better understand language processing in the brain, in particular across languages. His work has appeared at the Organization for Human Brain Mapping (OHBM), Cognitive Computational Neuroscience (CCN) and Empirical Methods in Natural Language Processing (EMNLP).

Christine Tseng, TU Berlin, Germany
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Bio. Dr. Christine Tseng is a Postdoctoral Researcher at TU Berlin, Germany, and completed their Ph.D. at Helen Wills Neuroscience Institute at UC Berkeley, USA. Their research interests include language processing in the brain, social neuroscience, brain encoding models, and using AI/ML to better understand the brain. Their work has appeared at CogSci, Society for Neuroscience (SfN), Cognitive Computational Neuroscience (CCN), the Society for the Neurobiology of Language (SNL), and in the Journal of Neuroscience.

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Bio. Dr. Subba Reddy Oota is a Postdoctoral Researcher at TU Berlin, Germany, and completed his Ph.D. at Inria Bordeaux, France. His research focuses on language analysis in the brain, brain encoding/decoding, multimodal information processing, and interpreting AI models. He has published at top venues including NeurIPS, ICLR, ACL, EMNLP, NAACL, INTERSPEECH, and TMLR.